abcam

ab32058

Anti-Sumo 1 antibody [Y299] - ChIP Grade

Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058) is a rabbit monoclonal antibody detecting Sumo 1 in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF, ChIP**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 90 publications
- Trusted since 2006

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	Y299
Purification technique	Affinity purification Protein A
Specificity	This antibody recognises small ubiquitin-related modifier-1 (SUMO-1), also known as SMT3, Sentrin, GMP1 UBL1 and PIC1.
Concentration	0.55 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/20
Notes	-

Expected

Species	Human, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

ChIP

Tested

Species	Human
Dilution info	1/5
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/5000
Notes	-

Species	Rat
Dilution info	1/1000 - 1/5000

Notes	-

Species	Human
Dilution info	1/1000 - 1/5000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/250 - 1/500
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20 - 1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information SUMO1

Function	Ubiquitin-like protein that can be covalently attached to proteins as a monomer or a lysine-linked polymer. Covalent attachment via an isopeptide bond to its substrates requires prior activation by the E1 complex SAE1-SAE2 and linkage to the E2 enzyme UBE2I, and can be promoted by E3 ligases such as PIAS1-4, RANBP2 or CBX4. This post-translational modification on lysine residues of proteins plays a crucial role in a number of cellular processes such as nuclear transport, DNA replication and repair, mitosis and signal transduction. Involved for instance in targeting RANGAP1 to the nuclear pore complex protein RANBP2. Covalently attached to the voltage-gated potassium channel KCNB1; this modulates the gating characteristics of KCNB1 (PubMed:19223394). Polymeric SUMO1 chains are also susceptible to polyubiquitination which functions as a signal for proteasomal degradation of modified proteins. May also regulate a network of genes involved in palate development. Covalently attached to ZFHX3 (PubMed:24651376).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C

Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF), ChIP in Human, Mouse, Rat samples.

What is the molecular weight of Sumo 1?
Anti-Sumo 1 [Y299] - ChIP Grade (ab32058) specifically detects a band for Sumo 1 (UniProt: P63165) at a molecular weight of 12kDa.

Trusted by the scientific community
Anti-Sumo 1 [Y299] - ChIP Grade (ab32058) was first used in a scientific publication in 2006 and has been cited over 90 times in peer-reviewed journals.

Reviewed by scientists
Anti-Sumo 1 [Y299] - ChIP Grade (ab32058) has over 10 independent reviews from customers.

Specificity confirmed
The specificity of Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058) has been confirmed by Western blot testing in SUMO1 Knockout HAP1 cells.

Other related products
We have a range of other formats of antibody clone [Y299] also available for your convenience: ab32058, Alexa Fluor® 488 - ab196310, Alexa Fluor® 647 - ab196533, Carrier free - ab219724, PE - ab305671, APC - ab305672, HRP - ab305673, Alkaline Phosphatase - ab308937, Alexa Fluor® 594 - ab310693, Alexa Fluor® 555 - ab312223, Alexa Fluor® 568 - ab312712, Alexa Fluor® 750 - ab321562

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our

selection of trial-size antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	SUMO 1 also known as small ubiquitin-like modifier 1 is part of the protein family involved in post-translational modification. The protein mechanically adds a SUMO group to target proteins through sumoylation a process similar to ubiquitination. SUMO 1 typically has a molecular mass of around 11 kDa. It expresses in various tissues and cells including the nucleus and cytoplasm of eukaryotic cells. In addition it is important in processes like nuclear transport transcriptional regulation and protein stabilization.
Biological function summary	SUMO 1 contributes significantly to maintaining cellular homeostasis. It is an integral part of a SUMOylation complex that modifies other proteins to alter their function localization or interactions. Through its modification actions SUMO 1 affects processes such as DNA repair and the cell cycle. By interacting with components of the nuclear pore complex and transcription factors SUMO 1 modulates essential biological activities at multiple levels within the cell.
Pathways	This protein plays a significant role in the PI3K/Akt pathway and Wnt signaling. SUMO 1 associates with proteins like RanGAP1 and various transcription factors highlighting the complexity of its regulatory actions. These associations are important for the regulation of cell survival proliferation and differentiation. SUMOylation by SUMO 1 has been linked to an interference with phosphorylation showing its potential influence on cell signaling pathways.
Associated diseases and disorders	The dysregulation of SUMO 1 is seen in cancer and neurodegenerative diseases. For instance altered SUMOylation patterns contribute to the progression of certain cancers. Furthermore SUMO 1 interacts with proteins like p53 and these interactions can affect tumor suppression and cell cycle regulation. In neurodegenerative disorders disturbed SUMOylation is associated with protein aggregation and neuronal damage implicating SUMO 1 in diseases like Alzheimer's.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

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15 product images

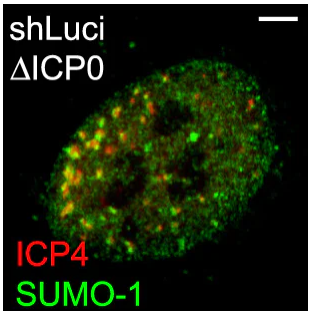
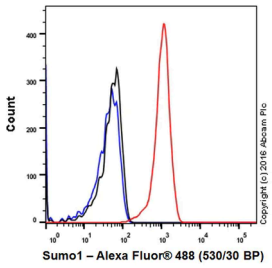


Image from Cuchet-Lourenço D et al. PLoS Pathog. 2011 Jul;7(7):e1002123. Epub 2011 Jul 14. Fig 9.; doi:10.1371/journal.ppat.1002123; July 14 2011 PLoS Pathog 7(7): e1002123.

Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Immunofluorescence analysis of ICP0-null mutant HSV-1 infected HepaRG cells, staining Sumo1 (green) with ab32058. An AlexaFluor®-conjugated goat anti-rabbit IgG was used as the seconday antibody.

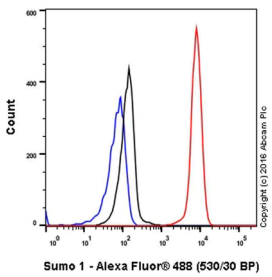


Flow Cytometry (Intracellular) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Sumo 1 antibody

ab32058 staining Sumo 1 in HeLa (Human epithelial cell line from cervix adenocarcinoma) cells by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde and the sample was incubated with the primary antibody at a dilution of 1/20. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody.
Isoytype control: Rabbit monoclonal IgG (Black)

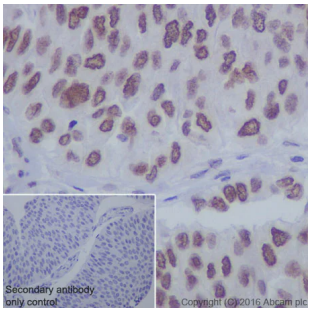
Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)



Flow Cytometry (Intracellular) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Sumo 1 antibody

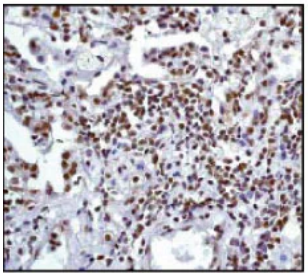
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labelling Sumo 1 with ab32058 at 1/20 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. An Alexa Fluorr® 488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Sumo 1 antibody

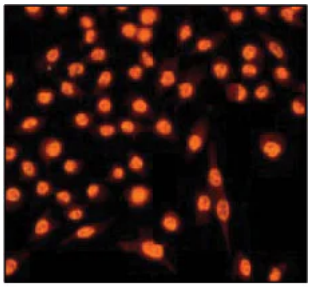
ab32058 staining Sumo 1 in human bladder carcinoma tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Sumo 1 antibody

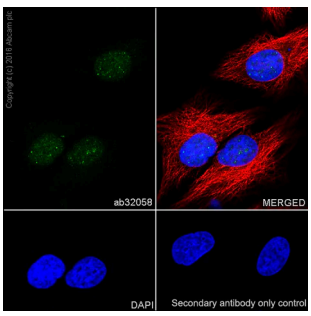
IHC of paraffin-embedded human lung carcinoma using anti-SUMO 1 (ab32058) diluted 1:250



Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sumo 1 antibody

Immunofluorescent staining of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells using anti-SUMO 1 (ab32058) diluted 1/250.

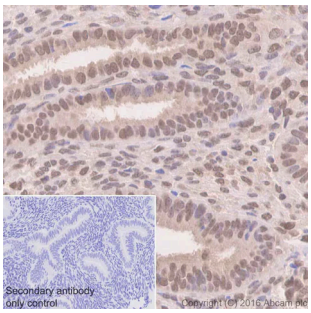


Immunocytochemistry/ Immunofluorescence - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sumo 1 antibody

ab32058 staining Sumo 1 in HeLa (Human epithelial cell line from cervix adenocarcinoma) cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody at a dilution of 1/500. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary

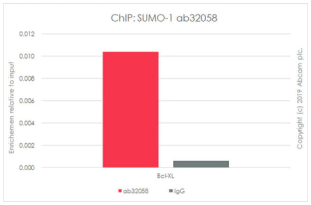
antibody at a dilution of 1/1000. ab195889 was used as a counterstain for primary antibody ab133645 at 1/200. DAPI was used as a nuclear counterstain and PBS as a negative control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

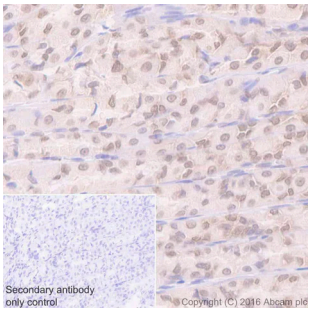
Sumo 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Sumo 1 antibody

ab32058 staining Sumo 1 in human endometrium tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.



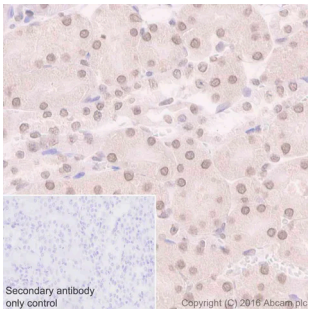
ChIP - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Chromatin was prepared from SK-OV-3 (Human ovarian cancer cell line) cells according to the Abcam X-ChIP protocol. Cells were fixed with formaldehyde for 10 minutes. The ChIP was performed with 25µg of chromatin, 5µg of ab32058 (red, and 20µl of Anti rabbit IgG sepharose beads. 5µg of rabbit normal IgG was added to the beads control (grey). The immunoprecipitated DNA was quantified by real time PCR (Sybr green approach).
ChIP was performed according to the literature (PMID: 23770046).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

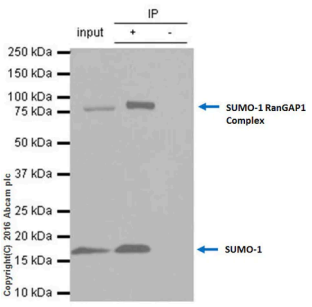
ab32058 staining Sumo 1 in rat stomach tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Sumo 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Sumo 1 antibody

ab32058 staining Sumo 1 in mouse kidney tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and antigen retrieval was by heat mediation in a EDTA buffer. Samples were incubated with primary antibody at a dilution of 1/250. A goat anti-rabbit IgG H&L (HRP) ab97051 was used as the secondary antibody at a dilution of 1/500.
Negative control 1: PBS in place of primary antibody.

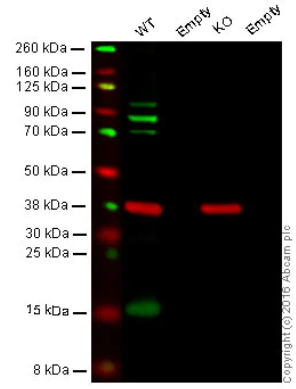


Immunoprecipitation - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

ab32058 immunoprecipitating Sumo 1. 10µg of NIH/3T3 (Mouse embryonic fibroblast) cell lysate was incubated with primary antibody at a dilution of 1/20 and VeriBlot for IP Detection Reagent (HRP) (ab131366) at a dilution of 1/1000.
Lane 1: NIH/3T3 whole cell lysate 10ug
Lane 2: ab32058 IP in NIH/3T3 whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab32058 in NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate

All lanes:
Immunoprecipitation - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Predicted band size: 11 kDa



Western blot - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

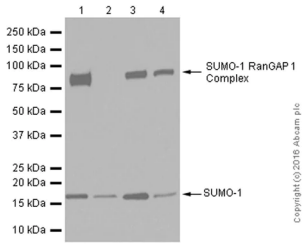
Sumo 1 Western blot staining using rabbit Anti-Sumo 1 antibody

Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: Empty
Lane 3: Sumo 1 knockout HAP1 whole cell lysate (20 µg)
Lane 4: Empty
Lanes 1 - 4: Merged signal (red and green). Green - ab32058 observed at 16 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab32058 was shown to react with Sumo 1 in wild-type HAP1 cells along with additional cross-reactive bands. No band was observed when Sumo 1 knockout samples were used. Wild-type and Sumo 1 knockout samples were subjected to SDS-PAGE. Samples were incubated with ab32058 and ab8245 (Mouse anti GAPDH loading control) overnight at 4°C at a 1/1000 dilution and 1/10000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Predicted band size: 11 kDa



Western blot - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

Blocking and diluting buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058) at 1/5000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
A549 (Human lung carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate at 20 µg

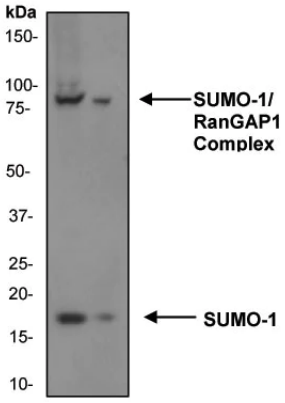
Lane 4:

C6 (Rat glial tumor glial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 11 kDa



Western blot - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058)

All lanes:
Western blot - Anti-Sumo 1 antibody [Y299] - ChIP Grade (ab32058) at 1/1000 dilution

Lane 1:
HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate

Lane 2:
NIH/3T3 (Mouse embryo fibroblast cell line) cell lysate

Predicted band size: 11 kDa

Observed band size: 12 kDa, 80 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.